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AGRICULTURAL CREDIT AS AN INSTRUMENT OF RURAL DEVELOPMENT IN TANZANIA: A CASE STUDY ON THE CREDIT PROGRAMME FOR TRACTORIZATION OF SMALL SCALE AGRICULTURE IN MOROGORO REGION

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ABSTRACT As in most developing countries, in Tanzania, agricultural credit is considered an important factor in stimulating agricultural production, particularly among small farmers. This paper provides the findings from a study on a formal agricultural credit programme sponsored by the government in Morogoro Region. The credit programme supplied tractors to small farmers in the region to improve production. Through a field survey conducted among small farmers who received the credit, it was found that the performance of the credit programme was below the expected level because of insufficient examination of the socioeconomic situation of the farms and lack of provision of supportive service to the programme.

Key Words: Morogoro Region; Agricultural credit; Tractorization; Agriculture and rural development.

INTRODUCTION

In most developing countries, agricultural credit has been considered an important factor for increased agricultural production and rural development. However, the provision of credit to the rural sector in these countries has experienced a number of problems. The first major problem has been that because most developing countries face a shortage of lending funds, they tend to depend heavily on external funds from donor agencies or governments to implement their credit programmes. Secondly, most rural credit programmes have not been able to reach the poor small farmers they are intended to help, and instead, are diverted to richer, big farmers. In a study on problems of agriculture credit in Bangladesh, for example, Adams & Nelson (1979) found that about 85% of credit for agricultural production had actually gone to tea producers and large-scale rich farmers. The third major problem has been the failure of these institutions to recover most of their advanced credit. Adams & Nelson (1979) found that in Bangladesh, loan recovery was as low as 35%. In Tanzania, the average recovery rate by the main bank lending to the agricultural sector, the Cooperative and Rural Development Bank (CRDB), has been about 45% (CRDB Report, 1990/91). These are just a few of the numerous problems which have impaired the success of rural credit.

The existence of so many problems in rural credit has led to a widely held view that formal credit programmes in developing countries cannot achieve their objec-

tives. Evidence, however, shows that there are quite a number of successful experience in rural credit, particularly, when credit programmes are accompanied with adequate supportive programmes. Von Pischke & Rouse (1983) have provided six examples of successful credit programmes in Morocco, Kenya, Cameroon, Zimbabwe and Malawi. They contend that the programmes were successful, owing to appropriate policies designed to suit specific circumstances in rural areas. In fact, the degree of success of any credit programme depends very much on the extent the programme addresses itself to local conditions.

The paper examines the design, implementation and performance of rural credit in Tanzania, through a case study of a tractorization credit programme in

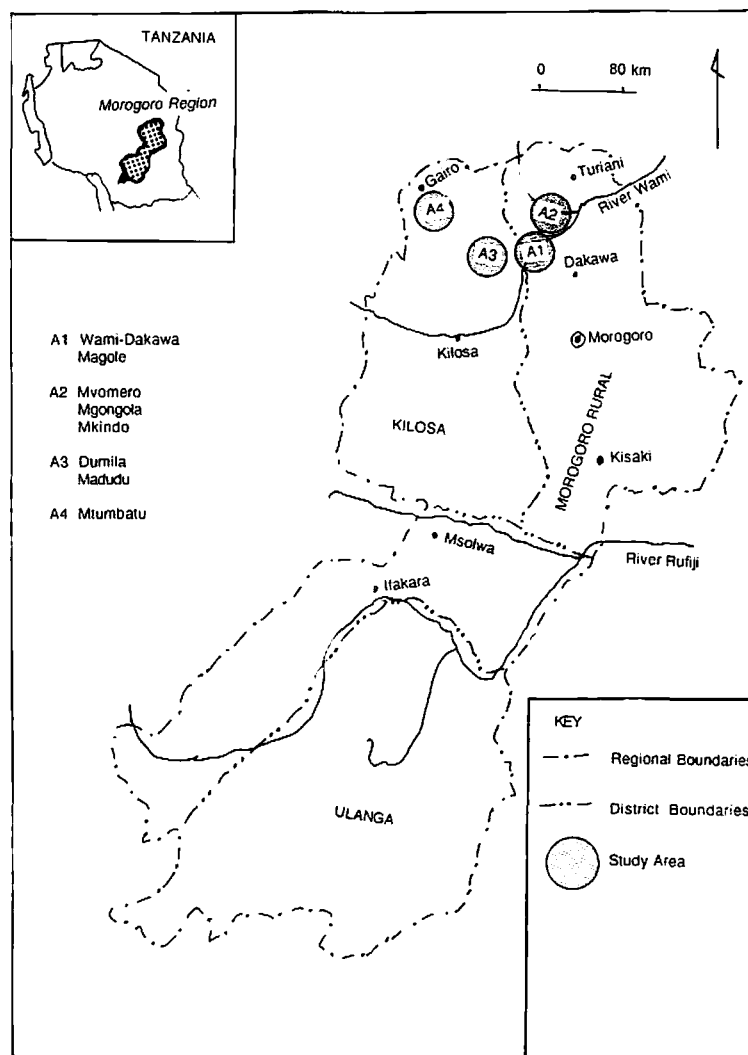


Fig. 1. Location of the study area.

Table 1. Distribution of interviewed borrowers by village and category.

Village	Category of Borrower			Total
	Individuals	Cooperatives	Villages/Groups	
Wami-Dakawa	1	1	1	3
Magole	2	1	1	4
Mvomero	2	1	0	3
Mgongola	3	0	1	4
Mkindo	2	0	0	2
Dumila	0	1	1	2
Madudu	2	0	0	2
Mtumbatu	1	0	1	2
Total	13	4	5	22

Source: Field Study, 1992.

Morogoro Region. It examines the background to the project, its implementation, the outcomes and overall performance of the programme. The main objective is to draw out the valuable experiences from this project, by identifying its strengths and weaknesses, for the benefit of future rural credit programmes in Tanzania. The assessment is based on a farm level study conducted at different periods, between mid 1991 and September 1992, for a total period of five months.

The Morogoro Region Tractorization Project covered all the districts in Morogoro Region. One hundred and fifty tractors were supplied by project funds to be issued on credit to farmers. Morogoro Urban District received 37 tractors, Morogoro Rural District, 40 tractors, Kilosa District, 53 tractors, Kilombero District, 13 tractors, and Ulanga District, 7 tractors. The study was conducted in Morogoro Rural and Kilosa Districts, which received 62% of the credit tractors distributed in the region. A field survey was conducted in selected villages, namely Wami-Dakawa, Magole, Mvomero, Mgongola, Mkindo, Dumila, Madudu and Mtumbatu, which were covered by the credit facility (Fig. 1).

Recipients of the credit facility were categorized into three groups, of individuals, cooperatives and village governments, so as to examine the differences in outcomes among these groups. A total of 22 recipients of the credit tractors were covered by the study (Table 1).

Random sampling was used to select respondents from the three groups. In the case of individual borrowers, the borrower was the respondent. Among cooperatives and village governments, the chairman was the respondent. More information, particularly on credit borrowed by the fourth group, district councils, was obtained by informal discussions with relevant authority and personal observation by the researcher. However, district councils were not included in Table 1 because the preliminary study showed that by the time of the study, all tractors owned by Morogoro and Kilosa district councils were not operating and no proper records were available. During the actual field survey therefore, district councils were not sampled.

BACKGROUND AND IMPLEMENTATION OF THE TRACTORIZATION CREDIT PROGRAMME IN MOROGORO REGION

1. Background to the Programme

Tanzania's agricultural production, particularly food production, suffered serious setbacks in the early 1980s, forcing the government to import large quantities of food to compensate for production deficits. Figure 2 portrays the situation of the two main staples in the country, maize and rice, in terms of national purchases and imports, between 1975/76 and 1985/86.

There was a sharp decline in national procurements of both maize and rice between 1980/81 and 1983/84. The decline was more pronounced in maize, forcing the government to step up imports of both staples. There was an urgent need to increase domestic food production, especially of maize and rice. It was then thought that the increase in production could be achieved by a rapid introduction of tractorization credit to small scale individual farmers and groups of farmers who lacked capital to purchase farm machinery to increase production and also to expand the area under cultivation.

The Government of the United Republic of Tanzania, therefore, requested assistance from Food and Agricultural Organization (FAO), who, within the framework of its agreement with the Government of Italy, agreed to introduce a tractorization project in Morogoro Region. The farmers would be provided with credit to enable them purchase the tractors. The region was chosen, because it was identified as a production deficit region with a high potential for mechanized farming.

In March 1985, the government of Italy provided US\$ 5.1 million, for technical assistance and machinery to be utilized as credit for mechanizing small-scale agricultural production in Tanzania between 1985 and 1986. The project provided 150 FIAT tractors each with a disc plough, a harrow and a trailer, plus 20 planters and 20 chisel ploughs, supplied in two phases. The project also included the establishment of a service workshop in Morogoro to provide tools, basic spare parts, vehicles and training for mechanics to service the tractors and machinery. The credit project was to cease operation at the end of 1990, when farmers were expected to be able to sustain tractorization on their own and operate profitably.

Within the broad objective of the credit facility to accelerate food production in the country, particular emphasis was put on tractorization of rice and maize production. Specific objectives, according to records obtained from the project office in Morogoro, included the following:

- (1) To demonstrate farmers the appropriate selection, application and management of machinery as a means to increase production on their farms.
- (2) To demonstrate to farmers and government personnel the crucial importance of the mechanization introduced under the credit facility and its maintenance by the individuals and groups of farmers.
- (3) To demonstrate the means of sustaining the programme through proper, and well-organized, and well-managed credit facility, training of users, and services for the supply, maintenance and repair of equipment.

II. The Regional Mechanisms for Agricultural Credit Disbursement

As in all other regions in Tanzania, the provision of agricultural credit to small farmers in Morogoro Region had grown rapidly, particularly after the government established the first rural lending bank in 1971. The bank, Tanzania Rural Development Bank (TRDB), changed its name to Cooperative and Rural Development Bank (CRDB) in 1984, in an apparent move to expand lending to small farmers through farmer cooperatives. Also financing the rural sector are the National Bank of Commerce, (NBC), Tanzania Investment Bank (TIB) and the Tanzania Housing Bank (THB), though their roles are smaller.

Most credit for small farmers in Morogoro Region is provided by the regional branch of the Cooperative and Rural Development Bank (CRDB). The regional branch has two lines of credit, namely, short-term credit and long-term credit. The short-term credit facility, for durations of up to 18 months, is mostly used to finance the supply of seasonal inputs and the provision of overdrafts for crop procurement. This credit is provided to small farmers through their respective cooperative unions, which submit farmers applications for credit to the regional branch of the CRDB, at least three months before the season starts. These applications are scrutinized by the regional branch, and forwarded to the head office, depending on the amount applied for. The head office, which in most cases lacks adequate funds to finance all the requirements, may apply for credit from the larger commercial bank, the National Bank of Commerce, or the Central Bank. When the credit is secured, the same channel is followed down to the farmer. In the case of input credit, the inputs are purchased by the CRDB and passed to the farmer through their cooperatives. Crop procurement credit is usually provided to the cooperative unions, but with recent liberalization of crop procurement, individuals may also directly obtain the credit.

All credit facilities for regional agricultural projects, therefore, are forwarded to farmers through the respective CRDB regional branches, which then supervise the utilization of the credit as well as its recovery. The Morogoro Region Tractorization Credit, which is the focus of this study, is one such credit facility.

III. Implementation of the Credit Programme

The Ministry of Agriculture and the CRDB were directly responsible for the implementation of the Morogoro Region Tractorization Credit Project. The ministry and the bank cooperated with the FAO office in Tanzania. The ministry set up a project office at Morogoro which worked very closely with the CRDB Morogoro branch which handled the credit facility. While the bank concentrated more on credit aspects, the project office concentrated on technical aspects of tractorization. The CRDB was commissioned to sell the tractors on credit on behalf of the government, on the agreement that the government will pay a 2.5% commission fee and share the interest accruing from the credit. Interest charged on the credit was 20.5% per year. Proceeds from the sale of tractors were used to establish a counterpart fund, which would be used to provide other supporting services to the credit project, such as fertilizer, construction of rural tractor service centers, and

Table 2. Distribution of Phase I and II credit tractors by district in Morogoro region.

	District	No. of Tractors
Phase I (1985/86)	Morogoro Urban	37
	Morogoro Rural	27
	Kilosa	36
	Sub Total	100
Phase II (1986/87)	Morogoro Rural	13
	Kilosa	17
	Kilombero	13
	Ulanga	7
	Sub Total	50
	Total	150

Source: Ministry of Agriculture, 1992.

the procurement of spare tractor parts.

Successful applicants were to pay to the CRDB, the market price of the tractor, TShs 440,000, equivalent to US\$ 19,753, for Phase I tractors. The price rose to TShs 960,000 for Phase II tractors, due to the devaluation of the Tanzanian shilling. Individual borrowers paid a down payment of 50% of the tractor cost, while cooperative borrowers paid a 25% down payment. Interest was charged on the remaining after a 2-year grace period.

Project tractors were distributed to successful applicants in all districts, but of the 150 tractors, 93 went to Morogoro Rural and Kilosa Districts. Overall distribution is shown in Table 2.

As for the distribution by category of borrower, 84 tractors (56%) were distributed to individuals, 34 tractors (23%) to villages, 20 tractors (13%) to cooperatives and 12 tractors (8%) to district councils. More tractors went to individuals because it was agreed between the government and the donors to basically favour individual borrowers on the expectation that credit discipline would be higher among individual borrowers. The project was to cease operation in 1990, but as of July 1992, the project office was still involved in the supply of agricultural inputs, tractor spare parts as well as monitoring and training of project tractor owners.

THE PERFORMANCE OF THE PROGRAMME: ACHIEVEMENTS, PROBLEMS AND WEAKNESSES

I. General Achievements

(1) Knowledge and experience gained by farmers and staff involved in the project

The first major achievement of the credit programme is the knowledge and experience gained by both the credit staff and the farmers who benefitted from the credit facility. There were 11 head office staff plus 5 field staff involved in the day-to-day handling of the project. All project staff members received training in machinery repair and maintenance, as well as credit supervision and monitoring. One head office staff member was granted scholarship for further training in Italy, and

two others were scheduled to receive courses abroad on information processing using computers. Also, 69 agricultural extension staff were trained in the general operation of machinery, and data collection to support the mechanization programme.

Weekly project appraisal panels, which involved the Regional Agricultural Office, the Project Office, CRDB and the Regional Development Director's office, convened on a regular basis. The panels evaluated the project performance, problems and strategies. These discussions were a good means of exchanging ideas on problems and better methods for credit management.

(2) The provision of tractors and seasonal inputs to farmers on credit

The second major achievement was the availability of tractors, to those who obtained the credit. The tractors were used in ploughing and also provided transportation, which, although not a primary objective of the project, provided a service which was in demand in the rural areas. Spare parts for tractors as well as other project vehicles worth about TShs 36.9 million were also supplied under the project (Table 3).

Farm inputs worth about TShs 27 million were also issued on credit farmers in the region (Table 4).

(3) Construction of farm service centers and improvement of rural access roads

During the course of the project, five farm service centers to service tractors were constructed at Kilengezi, Kanseli, Mikoche-Mitatu, Wami-Dakawa, and Manyenyere villages. Construction of rural feeder roads, as well as bridges at various locations

Table 3. Spare parts imported by the Morogoro Region Project Office, 1990-1991.

Type of Spare Parts	Value in US\$ (CIF DSM)	Value in TShs (× 1000)
1. 120 pcs. Tractor rear tyres with tubes	41,042.30	8,003.2
2. Tractor parts	111,753.12	21,756.8
3. Other machinery parts	18,857.54	3,677.2
4. Vehicle parts	11,200.6	2,184.1
5. Motorcycle parts	6,710.61	1,308.6
Total	189,384.17	36,929.9

Source: Ministry of Agriculture, 1992.

Table 4. Seasonal inputs loan disbursement and repayment position as at the end of 1991/92 season ('000 TShs).

District	Total Loans	Repayments	% Repayment
Morogoro Urban	997.5	699.8	70.2
KKilosa	1,290.0	221.0	17.1
Ulanga	6,387.3	1,766.8	27.7
Kilombero	14,736.7	6,609.2	44.8
Morogoro Rural	3,580.7	1,970.4	55.0
Total	26,992.2	11,267.2	41.7

Source: Ministry of Agriculture, 1992.

was also undertaken.

(4) General increase in area under cultivation

Another overall achievement was a general increase in the area cultivated in the region following the introduction of the tractorization programme. Table 5 shows the expansion of the regional area under cultivation from the 1985/86 season to 1989/90 season (Table 5).

Table 5. Area under cultivation in Morogoro Region, 1985/86 to 1989/90.

Season	Number of Tractors	Planned (ha)	Actual (ha)	Average (ha/tractor)
1985/86	100	15,360	16,768	167
1986/87	150	24,000	19,333	129
1987/88	150	24,000	22,464	150
1988/89	141	24,000	17,353	123
1989/90	140	21,000	15,813	113

Source: Ministry of Agriculture, 1992.

The general increase in area under cultivation, although below the target in all seasons, except in the 1985/86 season, may be a good indication of a positive impact of the credit on farming. Although the increase in area under cultivation may have been brought about by factors other than the credit tractors, their positive contribution can be justified by the fact that the peaks for area under cultivation occurred in 1986/87 and 1987/88, the time when the tractors were in prime condition. In 1986/87, the period when the project had just started, the total area under cultivation was very low. Then after 1987/88, the total area under cultivation started to decline when the tractors started to break down due to poor management.

II. Major Problems and Weaknesses of the Credit Programme

Despite the general achievements of the credit programme discussed above, the study revealed a number of problems as well as weaknesses in the credit programme, which originated from its design as well as implementation. These are discussed below:

1. Major Problems

(1) Poor maintenance of credit tractors

Almost all credit tractors, particularly those not maintained by individuals were poorly maintained, with no proper record keeping. The study found that most of these tractors were completely out of order after 2 to 3 years of use, well below the projected durability of 6 years. This also led to a high rate of loan default. The failure to repay the credit and weakness in managing tractors issued to villages and district councils was well shown by records on tractors repossessed by the project office. Five tractors, which belonged to Kisasi-Kibaoni village, Mkindo village, Morogoro District Council and Kidugobasi village, were repossessed. The fifth tractor belonged to an individual. During the time of this study, operational tractors

belonged mostly to individuals. However, most individuals who still owned tractors were villagers who were large-scale farmers with farms of about 30 ha or more, compared to ordinary small farmers in the area whose plots were 0.5 to 1.5 ha. Most small farmers who obtained tractors had either abandoned or sold them.

(2) Poor loan repayment

There was a generally poor loan repayment associated with the project. Records in the project office showed that, of the 50 borrowers of Phase II tractors, 20 finished paying their credit on time, while 30 had yet to repay their loans. This is only a 40% repayment rate. Tractor owners blamed their inability to repay loans on low returns from tractors, late repayment for produce by cooperatives, high tractor running costs and delays in the repair of equipment. For Phase I tractors, however, repayment was a high 61.3%. While loan repayment was considered a problem by 67% of owners of Phase II tractors, it was considered so by only 36% owners of Phase I tractors. This disparity may be explained by the fact the price of Phase II tractor supplied just a year later was more than twice that of Phase I tractors, as mentioned above.

The poor loan repayment prompted the project office to repossess the five tractors mentioned above. By the time of this study, 10 more tractors were due for repossession for the same reason. Among these belonged to small farmers, 2 to village governments and 3 to cooperatives.

The repayment of seasonal inputs supplied under the project was also low. By the end of 1991/92 season, of the total inputs credit of about TShs 27 million provided, only TShs 11.3 million was repaid. This represents a low 41.7% repayment rate (Table 4).

(3) Inability by owners to sustain tractorization

Most owners were unable to sustain tractorization in the absence of further credit. When owners with still operational tractors were asked if they could replace their tractors without further credit, 62% said they could not, while 38% said they could. High tractor costs, coupled with high tractor running costs and delays in repairs to equipment were the most frequent reasons given by interviewed owners. Late delivery or lack of necessary inputs, followed by low prices for farm produce was also frequently cited as contributing factors.

(4) Diversion in use and resale of borrowed tractors

In surveyed villages, the few project tractors still operational were mostly being used for transporting people rather than farming. Among surveyed owners, transport accounted for 78% of tractor use on average. 73% indicated that they profited more from transportation than from farming, due to low ploughing fees set by the regional government. The government set the tractor hire cost at TShs 4,000 to 5,000 (1 US\$ = TShs 400) per hour for ploughing during the 1991/92 season. When the tractor is used for transport, which has no government set fee, between TShs 80–160 were charged per km per ton. Most tractors can carry up to 5 tons. So if the tractor transports 5 tons at a moderate speed of 20 km/hr, one makes between TShs 8,000 to 16,000 an hour, which is clearly better than when hired for farming.

The alternative of using tractors to plough one's own farms is limited by the fact that most farms are small, and not sufficient for the effective utilization of a tractor of the size provided by the project. Therefore, from this analysis, it is more lucrative for the farmers to use the tractor for transportation rather than farming. This shows that the regional government could not foresee the fact that too low a ploughing rate would divert the use of tractors to an alternative, defeating the original objective of providing the tractors.

According to the Ministry of Agriculture (1992), a considerable number of tractors have been sold secretly to third parties by borrowers, sometimes outside the region. The exact number of tractors sold to third parties was, however, not available.

(5) Inavailability and high cost of spare parts

There was also the problem of the inavailability and high cost of spare parts for the tractors. About 50% of the grounded tractors were grounded just because of worn-out rear tyres. Although recently Tanzania has undertaken extensive import liberalization, the tyres are said to be unavailable in the free market or too expensive. A rear tractor tyre costs about TShs 400,000 (about US\$ 1,000) in the free market, which most tractor owners said they cannot afford. Although the official price for government imported rear tyre is TShs 200,000, the government is unable to satisfy the demand. Tractor owners also showed reluctance in taking their tractors to the project appointed official agents for repairs, because the service workshop was too far away in Morogoro town, and also feared that parts would be stolen from their tractors. Tractors owners preferred mechanics to repair their tractors in their presence, but this could only be possible if there were enough mechanics to visit farmers and the breakdowns were only minor ones. This claimed cannibalism, however, could not be verified, but many tractors owners continued to use their tractors, even when they had mechanical problems. The farm service centers built by the project and then handed over to the district and village governments were hardly used, due to the lack of technicians as well as a general lack of equipment and spare parts.

2. Weakness of the Project

The problems experienced in the credit programme were largely associated with weaknesses in project design. There were some problems beyond the project's control, such as the 1989/90 floods in the region which resulted in poor harvests and consequent failure by farmers to honour their credit commitments. However such occurrences were few. The major weaknesses of the credit programme mainly arose from the following factors:

(1) Incompatibility between tractorization and size of farms

Most farmers in the project area own farms too small to profitably utilize a large tractor. Although a typical farmer may own more than two small farms at different locations, the total area is still inadequate for a tractor. According to the study, most farmers own between 2 and 6 farming plots, situated between 10 km to 20 km

from their homes. Approximately 47% of farmers lived within 10 km of their farms, while the rest lived farther away. Areas of farms range between 0.4 ha to 0.75 ha, while total farm sizes in the study villages ranged from 1.6 to 4.5 ha. Despite this broad variation, however, the study found the average total size of farms to be only about 2 ha. These areas are too small for effective utilization of 70 horsepower tractor, which requires only 5 hours to plough such an area. In such a farming system, therefore, a tractor will most probably be underutilized, unless it is hired out to plough other farms. Hiring out tractors, however, as already pointed out, is very unprofitable. According to most borrowers, to keep the tractor properly utilized, one needs at least 30 ha. Such large farms are not common in the area.

(2) Inadequate farmer knowledge and experience on tractor management

Most farmers in the study showed that they lacked knowledge and experience in tractor management. This led to the rapid depreciation of the tractors, most of which were out of operation only after 2 to 3 years. According to the Ministry of Agriculture (1991), the durability of a tractor in Morogoro region was known to be 6 years, but may be as long as 9 years with good maintenance. The rapid depreciation might have been caused by a combination of factors, but lack of proper tractor operating skills as well as inadequate maintenance have been the major causes. The project office in Morogoro conducted some short-term courses for tractor operation and maintenance at Morogoro, aimed at introducing borrowers to basic tractor management. However, the enrollment did not strictly target borrowers, to the assumption that anybody could be trained and then hired by the borrowers to operate the tractors. Most non-tractor owners who received the training, however, hardly operated project tractors due to low salaries. Information obtained from the study shows that borrowed tractors were poorly maintained, resulting in a high rate of depreciation (Fig. 2).

Findings, showed that, depreciation costs accounted for about 46%⁽¹⁾ of tractor operating costs. This fact is well reflected in the low expenditure on repair and maintenance, only 4.6% of total operating costs. According to Krämer (1991), depreciation costs accounted for about 7.3% of tractor operating costs in developed countries, due to better skill and superior management, but in the developing countries, repair and maintenance accounted for about 10% of the total cost, much higher than the 4.6%.

(3) Indivisibility of the credit

The credit was tied to the tractor, an innovation which was too expensive to purchase, and also indivisible. As shown above, in this project, prospective owners were required to raise a down payment of 25% of the cost of the tractor in the case of cooperatives and 50% for individuals. Thus, an individual farmer was supposed to be able to pay about TShs 220,000 for Phase I tractors or TShs 480,000 for Phase II tractors as down payments. Such high initial costs, although justified given the cost of the tractors, were already prohibitive to the ordinary small farmers with low income.

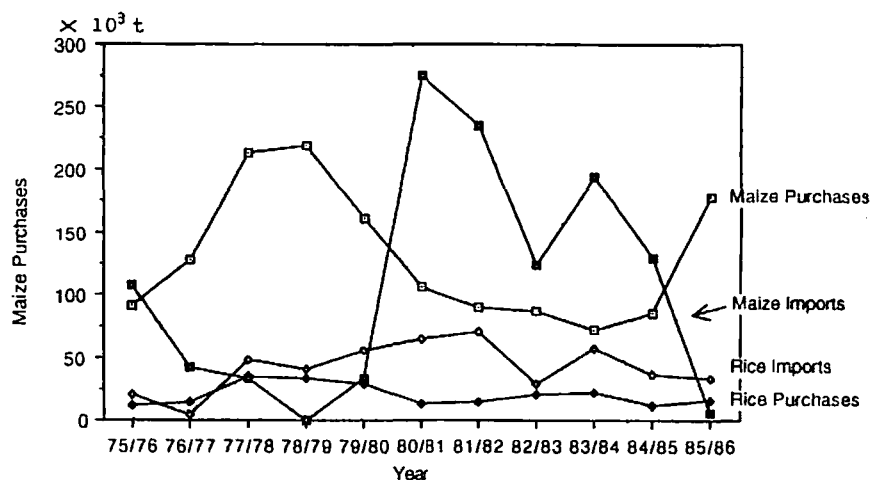


Fig. 2. National purchases and imports of maize and rice, 1975/76 to 1985/86 in Tanzania. (Source: Ministry of Agriculture, United Republic of Tanzania, 1990).

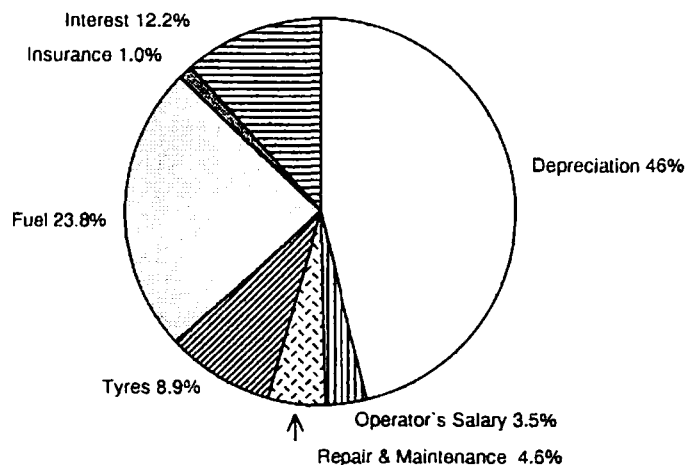


Fig. 3. Distribution of tractor operating costs among sampled owners (Source: Field Study, 1992).

(4) Lack of farmers' involvement in the planning and implementation of the credit project

The Morogoro Region Tractorization Credit Programme was intended to transfer technology to the small farmer. Since technology transfer is highly sensitive to social, economic political, and, of course, technical factors, it is also necessary to involve farmers in the planning and implementation of the project, apart from the need to involve specialists in these areas. This is important not only because farmers are the ones who know their environment best, but also because their participation is crucial in their embracement of the project.

The Morogoro farmers were absent from the start of the project. The regional

committee, for example, which was involved in the planning and implementation of the project had no farmer representatives. This deprived the committee of important information about the farmers and their social environment.

(5) Lack of proper evaluation of borrowers credit-worthiness

Credit tractors which were allocated to villages and small scale farmers were allocated mainly due to political pressure, rather than actual demand and ability to utilize tractors profitably. For example, it was learnt from the study that most villages which had borrowed tractors did so because they were told by local government authorities that they had been allocated a tractor, even though they had not applied for one. As most of the villages were unable to raise the required down payments, district governments provided the villages with the down payments, which were never repaid. For example, of the 4 villages covered by the study, 2 villages (Magole and Dumila) received their down payments from the district office, and up to now, the sums have not been repaid to the district office. There was also evidence from interviewed borrowers that the credit was received without prior consultations on how to use the borrowed tractors. Seventeen out of the 22 interviewed borrowers (77.3%) indicated that they had neither prior intention to purchase a tractor nor plans on how to use a tractor if they could get one by credit. Their commitment for credit was borne simply because it became available.

(6) Lack of adequate supportive services to the credit programme

The success of any credit programme depends highly on the quality as well as quantity of support it gets from other relevant sources. Such support ranges from crop marketing, crop pricing, input supply and delivery, research, extension, irrigation, crop protection to infrastructural support, which include rural transportation, crop storage, and processing. Most of these support services in the study area were found to be either inadequate or too poor to facilitate smooth operation of the credit programme as discussed below:

a. Inadequate institutional support:

The marketing system in the area in particular was unsatisfactory. Interviewed members of the *Jembe Mali* primary cooperative societies at Mvomero, were yet to receive payments for their previous season's crop, apparently because the National Milling Corporation (NMC), a public parastatal which used to enjoy a monopoly on grain procurement, was unable to pay immediately. Most primary cooperatives visited were found to have management problems. There are quite a number of them that run without proper record keeping, especially due to lack of knowledge on bookkeeping among cooperative staff. Although recently the government has allowed private individuals to buy crops directly from farmers at free market prices, most private traders do not go to remote villages. This means that farmers in such villages have to depend on cooperatives, who buy at government-fixed producer prices that remain low, compared to increases in prices of agricultural inputs and tractor maintenance costs parts as shown in Figure 4.

In Figure 4, taking 1985/86 as the base year, the price indices show that producer prices for the two main staples of maize and rice failed to match increases in the

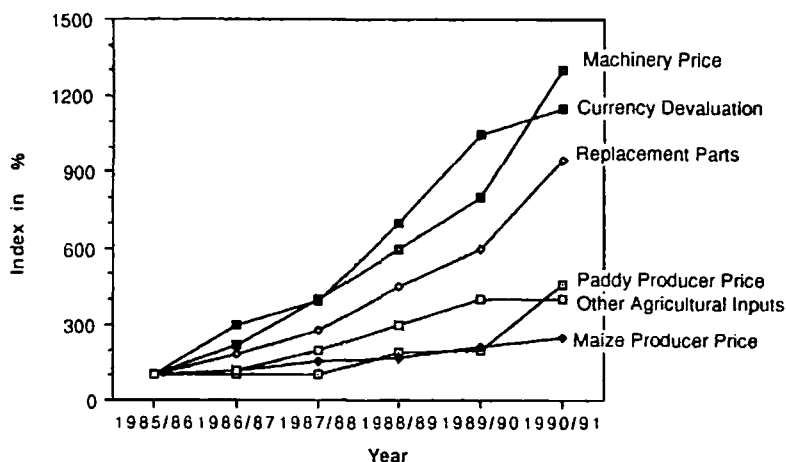


Fig. 4. Tanzania: Indices for price development, 1985/86 to 1990/91 (Source: Ministry of Agriculture, United Republic of Tanzania, 1990; Bank of Tanzania, 1991).

prices of machinery, machinery replacement parts, as well as prices of other agricultural inputs. It is noteworthy that, by 1990/91, prices of machinery, and their replacement parts had risen to almost 1,300% and 950%, respectively, while producer prices for rice and maize increased by a low 450% and 250%, respectively.

b. Weak infrastructural support:

Apart from the failure to match crop prices with the cost of tractorization and agricultural inputs, rural access roads, remain poor, making crop transportation from rural areas difficult. Crop storage facilities in the area also insufficient, and on the farm, processing facilities have largely been ignored. In the study areas, Wami-Dakawa, Magole Mkindo and Mtumbatu, the few storage godowns looked unmaintained and abandoned, while some maize processing machines, maize shellers, supplied by the project have been abandoned, due to lack of spare parts.

c. Inadequate utilization of local technical capabilities:

There was lack of coordination between the credit office and technical institutions in the area, such as Sokoine University of Agriculture and the Ilonga Agricultural Research Institute. The project office seems not to be keen about seeking technical advice from these institutions both before and during the project. Sokoine University, for example, is quite capable of conducting feasibility studies on social as well as economic aspects in rural areas, but it was not contacted by the project office for such a study or advice. The quality of extension in the area is also not only weak, but uncoordinated with the credit system. The extension service under the Ministry of Agriculture is not utilized by the credit system in advising farmers on how to use their borrowed tractors.

CONCLUSION

The credit program for tractorization in Morogoro region was initiated with much emphasis on rapid increases in agricultural production, without careful assessment of the necessary conditions for its success. It was also characterized by the lack of farmer participation and poor utilization of local institutions. Farmers, who could have provided useful information regarding their localities were not involved. Local institutions, Sokoine University of Agriculture and the Ilonga Agricultural Research Center, which have adequate capabilities to conduct field evaluations were not even consulted on such important issues. These, together with poor implementation, resulted in the unsatisfactory performance of the credit programme.

As seen in this study, most small farmers could not afford the credit due to its high initial cost, while the innovation tied to the credit did not have much to contribute to the farm production in the area. As a result, it failed to reach the intended small farmers and was sometimes misdirected to serve other purposes such as transportation. The weaknesses inherent in the design of the credit programme led to poor loan repayment and the failure to attain the expected level of agricultural change.

The Morogoro Region Tractorization Credit Programme could have been more successful if it was attached to an innovation which was more simple, divisible and applicable to a wider number of small farmers in the region. The important lesson gained from this credit programme, therefore, is, that the success of any rural credit programme depends highly on its applicability to the economy it is intended to improve.

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NOTES

(1) Depreciation is calculated by the formulism $D = \frac{PP - SV}{ELT}$

Where: D = Depreciation

PP = Purchase Price

SV = Salvage Value (10% PP)

ELT = Economic Life Time = Durability
(Projected)

REFERENCES

- Adams, D. & G. O. Nelson 1979. Rural financial markets in the development of Bangladesh: problems and issues of agricultural credit and rural finance. In (J. D. Von Pischke, P. J. Heffernan & D. Adams, eds.) *The Political Economy of Specialized Farm Credit Institutions in Low Income Countries*, pp. 34–39, World Bank Staff Working Papers No. 446, April 1981, Unpublished.
- Bank of Tanzania 1991. *Economic and Operations Report for the Year Ended 30th June, 1991*. Unpublished.
- Cooperative and Rural Development Bank (CRDB) 1990/91. *Annual Report and Accounts, 1990/91*. Unpublished, Tanzania.
- Krámer, K. 1991. *Review of Tractorization in Morogoro, Tanzania*. Report Submitted to FAO. Unpublished.
- Ministry of Agriculture 1990. *Annual Review of Main Crops in Tanzania*. Unpublished.
- 1991. *FAO Tractorization Project Report for 1991*. Unpublished.
- 1992. *Progress Reports for 1991 and 1992* (in Swahili). Unpublished.
- United Republic of Tanzania 1988. *National Population Census: Preliminary Report*. Unpublished.
- Von Pischke, J. D. & J. Rouse 1983. Selected successful experiences in agricultural credit and rural finance in Africa. *Savings and Development*, No. 1, VII: 21–43.

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